SCIENTIFIC AMERICAN.

THE ADVOCATE OF INDUSTRY AND ENTERPRISE, AND JOURNAL OF MECHANICAL AND OTHER IMPROVEMENTS.

VOLUME I. NEW-YORK, THURSDAY, AUGUST 28, 1845. NUMBER I.

THE

SCIENTIFIC AMERICAN,

PUBLISHED EVERY THURSDAY MORNING, AT NO. 11 SPRUCE STREET, NEW YORK, NO. 16 STATE STREET, BOSTON, AND NO. 21 ARCADE, PHILADELPHIA,

(THE PRINCIPAL OFFICE BEING IN NEW YORK,)

By RUFUS PORTER.

Each number will be furnished with from two to five original Engravings, many of them elegant, and illustrative of *New Inventions, Scientific Principles*, and *Curious Works;* and will contain, in addition to the most interesting news of passing events, general notices of the progress of Mechanical and other *Scientific Improvements;* American and Foreign Improvements and Inventions; Catalogues of American Patents; Scientific Essays, illustrative of the principles of the sciences of Mechanics, Chemistry and Architecture; useful information and instruction in various Arts and Trades; Curious Philosophical Experiments; Miscellaneous Intelligence, Music and Poetry.

This paper is especially entitled to the patronage of Mechanics and Manufacturers, being the only paper in America, devoted to the interests of those classes; but is particularly useful to farmers, as it will not only apprise them of improvements in agricultural implements, but instruct them in various mechanical trades, and guard them against impositions. As a family newspaper, it will convey more useful intelligence to children and young people, than five times its cost in school instruction. Another important argument in favour of this paper, is that it will be worth two dollars at the end of the year when the volume is complete, (Old volumes of the New York Mechanic, being now worth double the original cost, in cash.)

TERMS.—The "Scientific American" will be furnished to subscribers at $2,00 per annum,—one dollar in advance, and the balance in six months.

Five copies will be sent to one address six months, for four dollars in advance.

Any person procuring two or more subscribers, will be entitled to a commission of 25 cents each.

Wife, Children and Friends.

If the stog of our bliss be in stranger hands vested,
The fund all secured, oft in bankruptcy ends;
But the heart blues bills which are never protested,
When drawn on the firm of—wife, children and friends.

Though valour still glows in life's dying embers,
The death-wounded tar, who his colours defends,
Drops a tear of regret as he, dying, remembers
How blest was his home with—wife, children and friends.

The soldier, whose deeds live immortal in story,
Whom duty to far distant latitude sends,
With transport would barter whole ages of glory
For one happy day with—wife, children, and friends.

The day-spring of youth, still unclouded by sorrow,
Alone on itself for enjoyment depends;
But drear is the twilight of age, if it borrow
No warmth from the smile of—wife, children, and friends.

Let the breath of renown ever freshen and nourish
The laurel which o'er the dead favourite bends,
O'er *me* wave the willow, and long may it flourish,
Bedewed with the tears of—wife, children, and friends!

Attraction.

Attraction is a curious power,
That none can understand:
Its influence is every where—
In water, air and land;
It keeps the earth compact and tight,
As though strong bolts were through it;
And, what is more mysterious yet,
It binds us mortals to it.

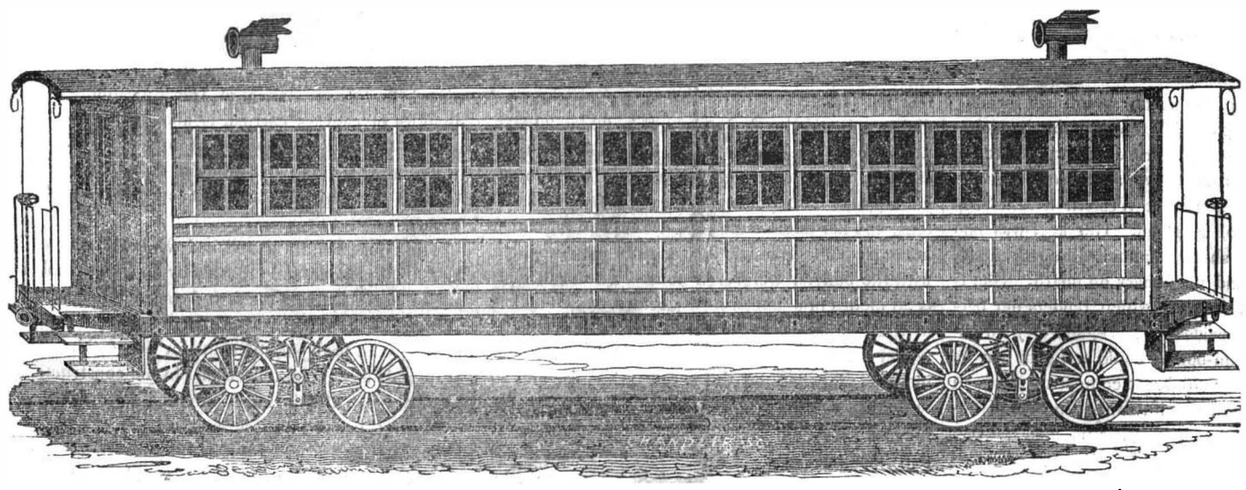
You throw a stone up in the air,
And down it comes—ker-whack!
The centrifugal casts it up—
The centripetal—back.
My eyes! I can't discover how
One object 'tracts another;
Unless they love each other, like
A sister and a brother.

I know the compass always points
Directly at the pole:
Some say the north star causes this,
And some say—*Symms's Hole!*
Prehaps it does—prehaps it don't;
Prehaps some other cause;
Keep on *prehapsing*—who can solve
Attraction's hidden laws?

A fly lights on a 'lasses cup—
Attraction bids him woo it;
And, when he's in, attraction keeps
The chap from paddling through it.
Attraction lures the sot to drink,
To all his troubles drown;
But when his legs give way, he falls,
And 'traction keeps him down.

Attraction is a curious power,
That none can understand:
Its influence is everywhere—
In water, air and land.
It operates on every thing—
The sea, the tides, the weather;
And sometimes draws the sexes up,
And binds them fast together.

IMPROVED RAIL-ROAD CARS.



There is, perhaps, no mechanical subject, in which improvement has advanced so rapidly, within the last ten years, as that of railroad passenger cars. Let any person contrast the awkward and uncouth cars of '35 with the superbly splendid long cars now running on several of the eastern roads, and he will find it difficult to convey to a third party, a correct idea of the vast extent of improvement. Some of the most elegant cars of this class, and which are of a capacity to accommodate from sixty to eighty passengers, and run with a steadiness hardly equalled by a steamboat in still water, are manufactured by Davenport & Bridges, at their establishment in Cambridgeport, Mass. The manufacturers have recently introduced a variety of excellent improvements in the construction of trucks, springs, and connections, which are calculated to avoid atmospheric resistance, secure safety and convenience, and contribute ease and comfort to passengers, while flying at the rate of 30 or 40 miles per hour. We purpose to give a particular description of these improvements, accompanied with suitable engravings, in our next number, that our readers may be enabled to appreciate more fully the progress of improvements in this important branch of mechanism.

LOWELL AS IT WAS AND AS IT IS; By Rev. HENRY A. MILES, is a neat 18mo of 234 pages just issued by Powers & Bagley, Lowell. It is full of facts of general interest. We learn from it that the Merrimac Company (whose dividends are so often quoted) employs 1250 women, whose average earnings considerably *exceed* $2 each per week above the cost of their board. The laboring men average 85 cents per day above their board: fifty-six overseers receive $2 each per day, with occasional premiums. [These are the *reduced* wages we hear of.] None are employed under fifteen years of age. No woman is retained a day after she is known to be guilty of licentious conduct, but not one in a hundred is ever discharged for any such cause. The average running time is 12 hours 10 minutes per day, which is too long and should be shortened, but the average working time of each hand is but ten hours and a half. In the Boott Mills, a careful account of working time has been kept, and it appears that 106 girls averaged 267 days each in a year and 10 hours 8 minutes per day, each being paid according to her work, and ☞ all are paid in cash every month,—not one farthing in store orders, or barter of any kind. The average earnings of the women in all the factories, including novices, is $1,93 per week besides their board. Many girls who have been school teachers gladly take places in the mills, as the pay is higher here, and the work lighter, though the hours are longer. No one has lost a sixpence of her earnings in the Lowell factories since the first was started. The girls have about $100,000 in the Savings Bank.

—Such is the condition of the Laboring Class in the principal Manufacturing town in America. Granted that it is not all it should be—that it might and should be improved—it is still true that no where else does a Laboring class of equal numbers earn so much, year by year; no where else are they so constantly employed, comfortably situated and adequately rewarded. Let those who would overthrow this state of things go to work and build up something better, or show how it may be done. Until they have some crude notions of this sort, ought they not to cease their incessant warfare on American Manufactures?—*Tribune.*

MAKING ARTICLES IN HORN.—The handles for knives, razors, and other articles moulded in horn, are thus made: The horn is first cut into appropriate pieces with the saw, and when heated, these are prepared with a knife or spoke-shave, to the general form and size required; after which the pieces are pressed into moulds. An idea of the mould will be conveyed by imagining two dies or pieces of metal, parallel on their outer surfaces, and with a cavity sunk entirely in the one, or partially in each, according to circumstances: it is made either straight, curved, twisted, rounded, bevelled, &c., of it is engraved with some device, according to the pattern of the work to be produced. The pressure is applied to the dies by enclosing them in a kind of clamp made with a strong pair of nut crackers, but with a powerful screw at the end opposite to the joint; the mould, dies, and horn, are dipped into boiling water or a few minutes, and then screwed as fast as possible immediately on removing the same, and in about twenty minutes the work is ready for finishing; some handles are made of two pieces joined together.

A SMOKE FILTER FOR LOCOMOTIVES.—An invention, which promises to be one of great utility, has been recently made by Mr. J. P. Dempfil, a French gentleman, of much scientific talent.—The invention consists of "an attachment" to the chimney of a locomotive, dividing it by a partition in two parts or passages, upward and downward, with a flywheel at the bottom of the downward draft, and a layer of gravel or sand underneath the wheel. The top of the chimney is closed, and the smoke and cinders pass upward through one passage to the top, then descending through the other, (a strong draught being made by the revolution of the flywheel, which is put in motion by the steam,) and all the refuse of the smoke pipe is retained by the grand filter, and the heated air again passes into the furnaces.

BURNING WELL.—A correspondent of the Cleveland Plain Dealer, gives an account of a burning well that may be seen at Southington Centre, in Trumbull county, Ohio. The well is 91 feet deep, all but 24 feet through sand-stone, quick-sand and hard rock, which the augur used for boring could not penetrate. When it was withdrawn, a peculiar odor, accompanied by a rushing sound, was perceived. Suspecting the presence of inflammable gas, Mr. Wannemaker, the owner of the well, lowered a lamp into it. A violent explosion, that did some injury to the by-standers, was the consequence, and the gas still continues to burn. It is doubtless carburetted hydrogen.

NEW ARTICLE OF EXPORT.—We are told that a Yankee broom maker in Ohio has, leased some twelve hundred acres of bottom land, on the Scioto river, near Columbus, and planted the entire plot in broom corn, with a view to export the crop to England, where he intends to proceed himself, and engage extensively in the manufacturing of brooms, taking with him the wood for the handles, and the machinery used for the purpose. Brooms made from the American broom corn are so much superior, for various uses, to any thing to be had in England, that they have become, within a few years past, quite a favorite in that country and are now exported thither in large quantities.—*Ex. paper.*

EXTRAORDINARY PHENOMENON.—The inhabitants of the village of Moulton were greatly astonished on Saturday last, at observing a considerable quantity of hay (from a field where it was in cocks for stacking) rise rapidly into the air. There was not the slightest breeze of wind perceptible at the time: however the hay continued to ascend until it apparently passed through the clouds, which were sailing high at the time. After the lapse of a few minutes it again appeard like a small black streak in the cloudy vapour, where it continued to form a most novel and extraordinary sight for ten or fifteen minutes, when it gradually descended again to the earth.—*Linconshire Chronicle.*

IMPROVEMENT IN OREGON.—Already has a canal been commenced around the dangerous falls in the Columbia river, at Willamette, by Dr. McLaughlin, an American citizen. Its length will be about half a mile, part of the way through a solid bed of primitive rock, and the fall in the entire distance will be about thirty-five feet. The projector expects to complete the work in two years, at a cost of thirty thousand dollars. His charter, procured from the Oregon Legislature is for twenty-one years. It is said that the improvement which will be effected in the navigation of the Columbia, by this construction of the canal will, of itself, fully reward the community for the privilege conferred by the Legislature.

PORTRAIT PAINTING.—A portrait painter in large practice might write a pretty book on the vanity and singularity of his sitters. A certain man came to Copely, and had himself, his wife and seven children all included in a family piece. "It was but one thing," said he, "and that is the portrait of my first wife—for this one is my second." "But," said the artist, "she is dead you know, sir; what can I do? she is only to be admitted as an angel." "Oh, no! not at all," answered the other; "she must come in as a woman—no angels for me." The portrait was added, but some time elapsed before the person came back; when he returned, he had a stranger lady on his arm, "I must have another cast of your hand, Copely," he said; "an accident befell my second wife; this lady is my third, and she is come to have her likeness included in the family picture." The painter complied—the likeness was introduced—and the husband looked with a glance of satisfaction on his three spouses. Not so the lady; she remonstrated; never was such a thing heard of—out her predecessors must go. The artist painted them out accordingly, and had to bring an action at law to obtain payment for the portraits which he had obliterated.—*Life of Copely, Family Library.*

GREAT IMPROVEMENT IN LITHOGRAPHIC PRINTING.—A very important improvement has been made in the lithographic printing machine by a young French engineer named Nicolle, by which the same precision and regularity of pressure is obtained as by the common hand-press. By the common lithographic process, not more than from 200 to 250 good impressions of designs, or about 1,000 copies of lithographic writing, can be obtained in twelve hours; by this new machine, which is also worked by hand, as many as 2,000 of the former, and 20,000 of the latter, can be obtained within the same period of time.

A SENSIBLE HORSE.—One of the truck horses of Mr. Hinds was unloosed for a minute or two, from the trucks, a few days since, in this city, when, on the driver looking around for him behold he was missing. It was an hour or two, before the driver could discover his whereabout. It was very mysterious, he being a steady beast, and not subject to flights of fancy. However, he was at last found in the smith's shop, where he was wont to have his shoes repaired. The smith said the horse entered and took the usual stand for shoeing. Upon examining his feet he found one shoe off, which he supplied. That horse is a sensible beast.

THE PROPERTIES OF ZINC.—Professor Farraday, as we are informed in the London Athenæum, has made this metal the subject of many interesting experiments. He has discovered that it assumes new properties on being melted and poured into water, the metal becoming very malleable and soft, losing none of its tenacity, but still capable of being spun into the finest wire, pressed into any required form, or rolled into any thinness desired. This promises to be a very useful discovery.

A SPECIMEN OF VEGETABLE SILK, raised from seeds received from Italy, which came originally from Syria, has been presented to the National Institute. Some of the seeds have been forwarded to Florida to the Hon. D. Levy, for the purpose of being cultivated.

CAUSE OF SOUND IN THUNDER.—Thunder is one of the consequences resulting from lightning, and lightning appears to be occasioned by the combustion of some of the inflamable particles of air; of according to more recent opinions, of a condensation of aerial matter conducing to electricity, by which in either case, a vacum is created. The sorrounding atoms which remain uninfluenced by this change, being forced together by the whole weight of the atmosphere, greatly constrict each other; but their elastic nature causes them immediately to expand, and by this enlargement their sonorous property is acquired. A centrifugal force being thus established, it acts in all directions alike; but as the circle extends, its propulsive power becomes gradually diminished, till at last its pressure is no longer felt, nor sound created. The rumbling noise of thunder is produced by that portion of the sonorous circle which strikes upon the earth, whence it becomes condensed; and, being intercepted in its upward course by dense masses of vapor, it is again reflected, and this alternate motion and reverbration continue, until the interuption ceases, or the original force is exhausted. Echo is occasioned also by reverbration from one cloud to ahother.—*Webster's Principles of Sound.*

LIQUOR BURNT.—Among the property destroyed by the late fire, in this city, was a large quantity of intoxicating liquors, for which nobody ought to mourn. It is announced that 912 pipes of brandy, 200 pipes of gin, 100 puncheons of rum, 2000 pipes; half and quarter pipes of Madeira wine, 3000 casks of port wine, 1000 Malaga, 1500 Marseilles, 1000 claret, and 5000 baskets of Champaigne were consumed. How much more that is not told of, on account of the little sympathy the tale would excite, is not known. The operations of sundry large wine merchants are also rudely put a stop to.

N. Y. Evangelist.

CATALOGUE OF AMERICAN PATENTS

ISSUED IN 1844.

CLASS 1.—*Agriculture, including Instruments and Operations.*

Bee Hives—Improvement in Bee Hives by Aaron E. James, Point Pleasant, Va., Jan. 6th.

Do. Samuel & J. D. Cope, Damascusville, Ohio, Feb. 8th,

Do. George B. West, Fairfield, Ohio, April 20th.

Do. James A. Cutting, Haverhill, N. H. June 24th.

Do. Jacob D. Fulkerson, Unity, Ohio, July 1st,

Do. Oliver Reynolds, Webster, N. Y., Dec. 4th.

Bee Palaces, Lemon Hamlin, Kirkersville, Ohio, July 13th.

Improvement in Churns—George W. Cook, St. Louis, Mo., Feb. 28th.

Do. Harmess Bently, Ballston, N. Y., April 20th.

Do. Jason B. Schermerhorn, New York, June 5th.

Do. Thomas Ling, Portland, Me., Aug. 21st.

Corn and Cane Cutters—Jacob Peck, Oakland, Penn., Aug. 28th.

Corn Fodder, Cutting and Crashing—Rudolph Miller, York, Penn., Oct. 3d.

Corn-Sheller—William McAll, Talladega, Indiana, April 13th.

Cultivator—Robert Nelson, West Point, Ia., Jan. 15th.

Cultivator—William Dyzert, Gettysburg, Penn., Aug. 16th.

Cultivator Teeth—James Birdsall, Hamorton, Penn., Nov. 9th.

Fruit-gatherer—Alexander McWilliams, Washington, D. C. March 13th.

Harrow, sward-cutting—Dennis Rice, Rowe, Mass., May 17th.

Hulling Clover Machines—A. B. Crawford, Worcester, Ohio, Dec. 31st.

Hulling and Pearling Rice—Jacob Groat, Troy, N. Y., July 11th.

Mowing, Grain Cradles—William A. Wood and John C. Loveland, Hoosick Falls, N. Y., Nov. 13th.

Mowing, Harvesting Machines—George Esterly, Heart Prairie, W. T., Oct. 22d.

Mowing Hemp Cradles—Griffin Reynolds, jun. Washington, Ky., May 30th.

Mowing, Reaping Machines—William F. Ketchum, Buffalo, N. Y., Nov. 18th.

Improvement in Ploughs—John Thompson, Ripley, Ohio, April 17th.

Do. Aaron Smith, Bloomfield, Mich., May 6th.

Do. Jonathan Meeers, Hazelton, Penn, July 1st.

Do. Anthony Taylor, New Garden, Ohio, Dec. 19th.

Plough, adjusting—William R. Allan, Brownston, Ky., Jan. 31st.

Plough, combined—Harvey Crown, Payson, Ill., March 9th.

Plough, double—Aaron Smith, Bloomfield, Mich. May 10th.

Plough, excavating ditches—James Herbert, Lagrange, Ia., April 13th.

Plough, gathering weeds under the furrow slice—Dudley Hills, East Hartford, Ct. Oct. 7th.

Plough, wheel—Israel Long, Bucyrus, Ohio, March 9th.

Potato-Diggers—Archibald C. Ketchum, Schenectady, N. Y., Feb. 20th.

Rake, grain—Benoni F. Partridge, Onondaga, N. Y., March 13th.

Rattoon and Cane Cutters—Robert Lauve, Plaquemines, La., Sept. 17th.

Seeding, corn planters—Thomas H. Hoskings, Crawfordsville, Ia., Jan. 20th.

Seeding, planting machines—Dierck Brewer, Petersburg, Tenn., April 4th.

Seeding, seed planters—Loea Pratt, Amherst, N. H., April 25th, and Richard J. Gatling, Murfreesborough, N. C., May 10th,

Seeding, seed planters—U. Kilburn, Lawrenceville, Penn., and F. Haines, Marietta, Penn., Dec. 31st.

Seeding, sowing machines—Ezra Fisk, Fayette, Me., Nov. 18th.

Smut Machine—Meredith Mallory, Mount Morris, N. Y, Jan. 20th.

Smut Machine—Jacob W. Brown, Mount Airy, N. C. Feb. 28th.

Do. James M. Clarke, Strasburg, Penn., March 20th.

Do. Samuel Scammon and R. Nason, Waterville, Me., April 10th.

Do. Elisha S. Snyder, Charleston, Va., April 30th.

Do. Henry B. James, Mount Holly, N. J., May 17th.

Do. Abraham Straub, Milton, Penn., May 17th.

Do. Elisha W. Young, Parkman, Ohio, June 5th.

Do. Thomas H. Nelson, Harrisburg, Penn., June 5th.

Do. James W. Webster, Luray, Va., June 5th.

Do. John Pagin, Michigan City, Ia., Aug. 19th.

Do. Jacob Groat, Troy, N. Y., Nov. 9th.

Straw-Cutter—William Hovey, Worcester, Mass. Feb. 12th.

Do. Hiram M. Smith, Richmond, Va., Feb. 20th.

Do. Eliakim Taylor, Rochester, N. Y., Oct. 12th.

Do. Ezra Taylor, Monroe, N. Y., Nov. 6th.

Threshing Machine—Luther & Ezra Whitman Winthrop, Me., March 20th.

Do. Charles W. Catheart, New Durham, Ind. April 25th, and Frederick A. Stuart, Catharine, N Y., June 5th.

Threshing and Winnowing Machine, and Grain Separaters—Jacob V. A. Wemple, Mohawk, and George Westinghouse, Schoharie, N. Y. July 13th.

Winnowing Fanning Mill, for cleaning grain—Calvin O. Guernsey, Russia, N. Y., Oct. 12th.

Winnowing, separating grain from [illegible] ning Packard and Christian B. Packard, [illegible] N. Y., Nov. 8th.

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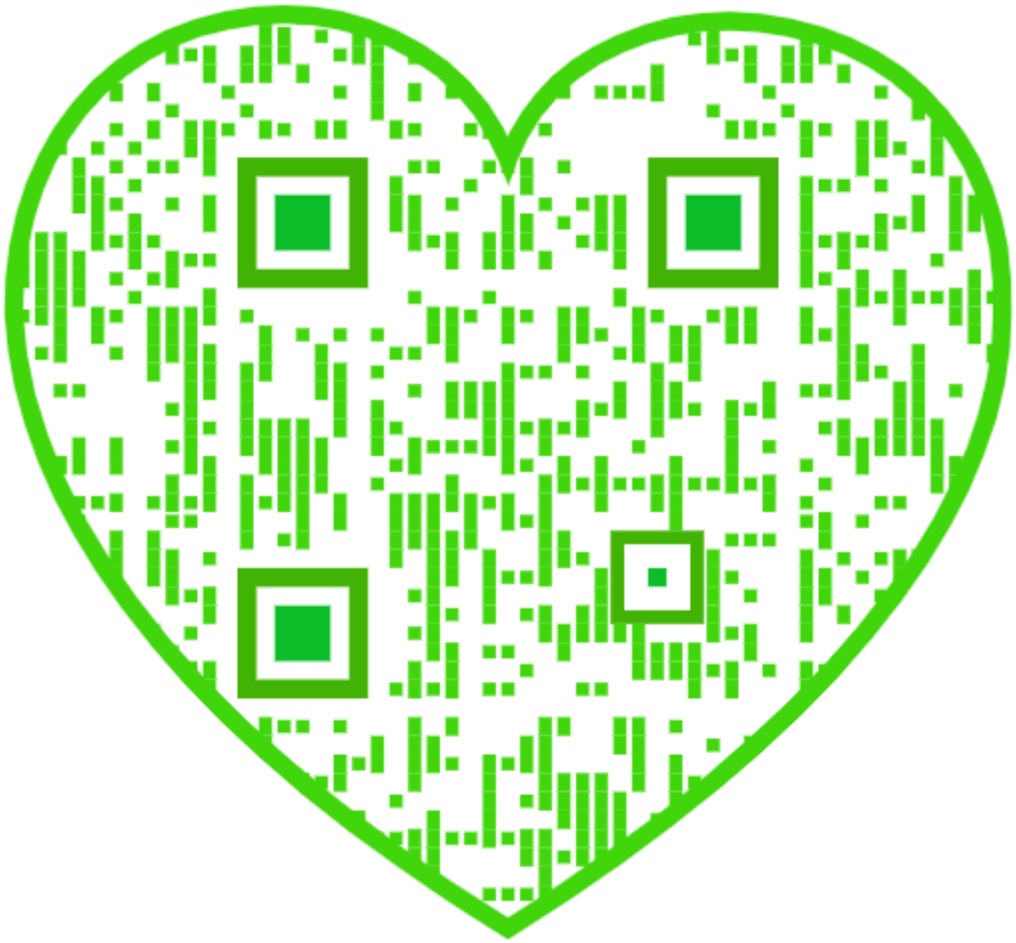
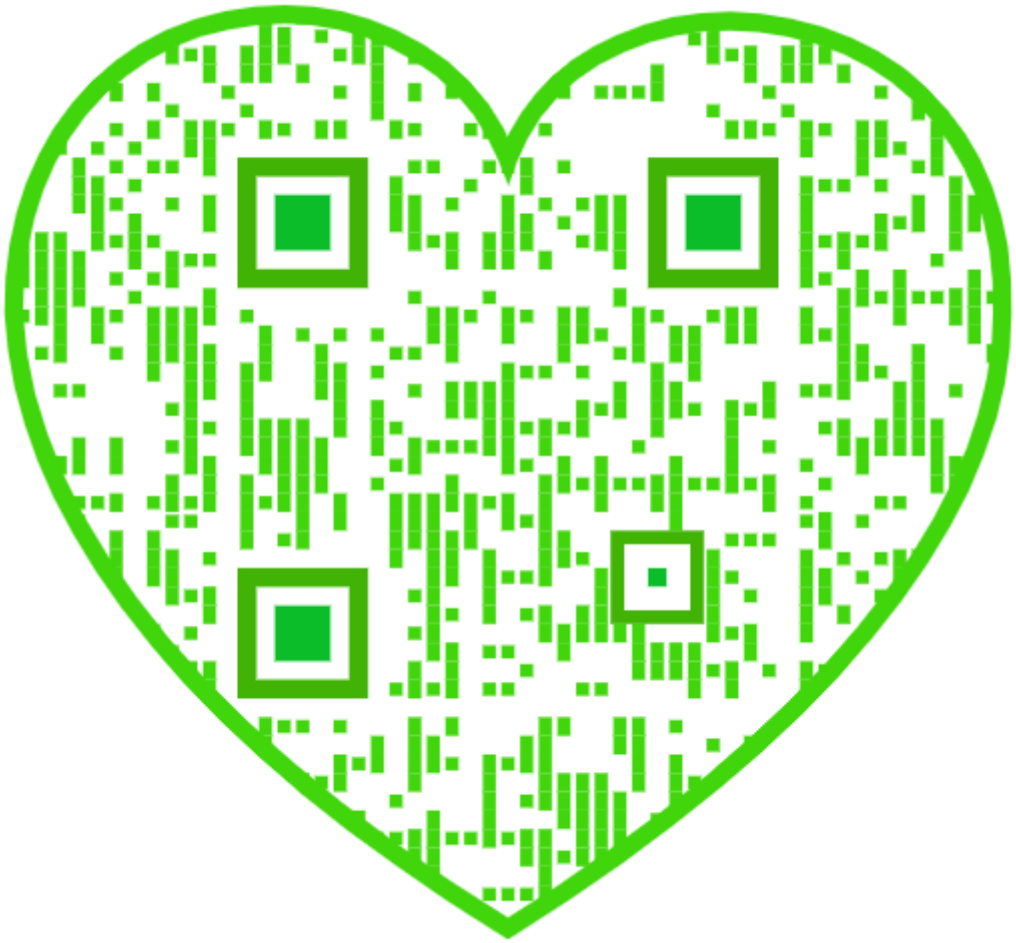




SCIENTIFIC AMERICAN

NEW-YORK, THURSDAY, AUG. 28.

To the American Public,—

Patrons and Friends:

Having the pleasure of again appearing before you, though under a new title, and in new dress, we may be expected to advance some remarks on things in general, and particularly on the subject of our motives, intentions and prospects. Since the discontinuance of the "American Mechanic"—the "Elevator" of Cincinnati, "American Protector" of Hartford, and "N. Y. State Mechanic" of Albany, having previously retired,—we have been frequently solicited by enterprising mechanics, and others, to engage in the publication of a new scientific paper, for the advancement of more extensive intelligence in Arts and Trades in general, but more particularly in the several new, curious and useful arts, which have but recently been discovered and introduced. We have, moreover, received communications from various sections of the country, and especially from the South and West, expressing the opinion that a paper of this description was wanted, and would be well received and extensively patronized, if once introduced. With this encouragement, we have made arrangements to furnish the intelligent and liberal workingmen, and those who delight in the developement of those beauties of Nature, which consist in the laws of Mechanics, Chemistry, and other branches of Natural Philosophy—with a paper that will instruct while it diverts or amuses them, and will retain its excellence and value, when political and ordinary newspapers are thrown aside and forgotten.

In conducting this publication, we shall endeavour to avoid all expressions of sentiment, on any sectional, sectarian, or political party subject; but shall exercise a full share of independence, in the occasional exposure of ignorance and knavery, especially when we find them sheltered by arrogance and aristocracy. We shall present no gloomy catalogues of crime and depravity, believing that the cause of neither happiness nor morality will be thereby promoted;—our object being to please and enlighten. We shall advocate the pure Christian religion, without favouring any particular sect; and shall make it a point to adhere to reason and common sense, independently of the opinions of those, whose interests and popularity depend on their rigid adherence to traditional doctrines, and church creeds.

With these sentiments and intentions, respected Friends and 'Sovereign People,' and with full confidence in your good-will and generous support—not in the least doubting, however, that you will consult your own interests quite as much as ours in the matter—we commend to your favour and patronage the "SCIENTIFIC AMERICAN."

EDITOR.

Editors and Publishers.

We shall send copies of our first number to several of our most respected cotemporaries, and would solicit their aid in notifying the mechanics of their vicinities, of the existence of the S. American. Those who will give our advertisement (head of our first page,) an insertion in their columns, shall be entitled to two copies of our paper, by which they will each have one copy to preserve and another to clip, as occasion may require; or, if they prefer it, we will send a dollar in cash for the insertion. Those who may volunteer to act as agents for this paper, may retain of the money received, 25 cents as commission, for each subscriber obtained.

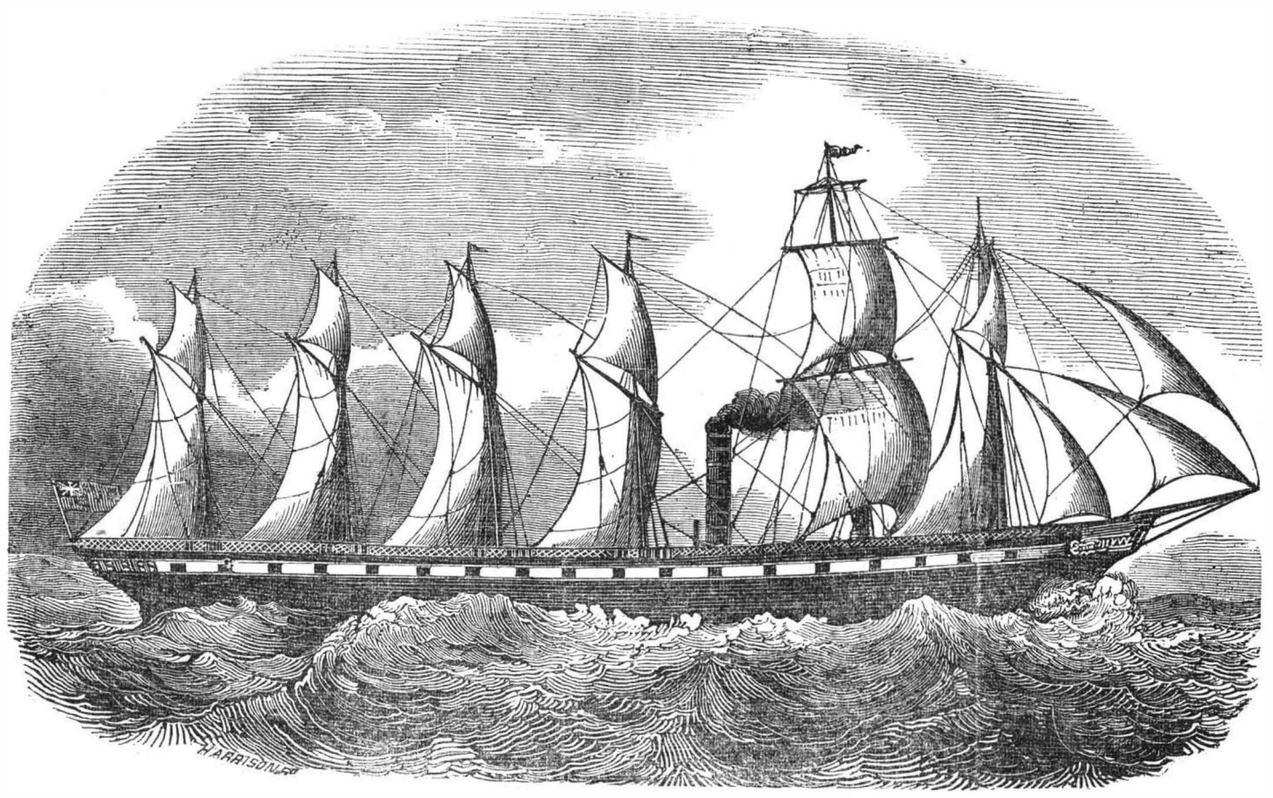
SECURE THE FIRST NUMBER.—Three dollars per volume is offered for the first volume of the "New York Mechanic," complete, and 25 cents per number, for several of the early numbers, by those who neglected to subscribe for the work in season to secure the first numbers. Thus it will be with the Scientific American; hundreds of people will wish for it in vain, when the first numbers are out. In anticipation of this circumstance, we shall print a few hundred more copies than are as yet ordered; but not more than will probably be taken up in two or three weeks.

EVERY SUBSCRIBER AN AGENT.—We have often observed in sectarian papers, a general request that all clergymen of the same denomination, should act as agents for the paper; and by such means, some papers have attained to an immense circulation. Not having any similar available advantage, we would solicit the favour of every honest mechanic who may receive this paper, to use his influence in our favour, and induce as many more as possible to subscribe for it. All favours of this kind will be duly appreciated.

POSTMASTERS who may receive this number, are requested to present it to some mechanic who will pay its postage, and shew the paper to others. Any Postmaster who may procure and forward the names of three subscribers, will be entitled to the volume free.

OUR ADVERTISEMENT.—Every person who looks at this paper, is particularly requested to examine our advertisement at the head of the first column, on the first page.

THE STEAM-SHIP GREAT BRITAIN.



This mammoth of the ocean, which has recently arrived from Liverpool, has created much excitement here as well as in Europe; being in fact the greatest maratime curiosity ever seen in our harbour. She was built by the Great Western Steam-Ship Company, at Bristol, England. Her keel was laid in July, 1839, and she was launched in July, 1844, with her engines and machinery on board. She is composed entirely of iron, which renders her perfectly safe against accidents by fire, and even an explosion of her steam-boilers could not sink her, as she is divided into five different compartments, each being thoroughly water-tight, so that in case of accident even one perfect division would float the vessel and cargo. The length of the keel is 290 feet; total length 322 feet; beams 51 feet; depth 32 feet 6 inches. She has four decks, the upper one being flush, and is 308 feet long; the second deck consists of two promenade saloons, one of which is 110 feet long by 22 wide. The third deck consists of dining saloons, the first of which is 96 by 30 feet. The saloons ars 8 feet 3 inches high and surrounded with berths, of which there are sufficint to accommodate 252 persons. Her burden is 3,600 tons, and her engines are capable of working 1,000 horse powers. She has four engines united, which with the boilers, weigh 540 tons. The main shaft is 28 inches in diameter in the centre, and 24 inches in the bearings, and weighs nearly 16 tons. The power of the engines is applied to a single submerged propeller, on the screw principle, and 15 feet 6 inches in diameter. The engines and boilers occupy a space of 80 feet in the middle portion of the vessel; the boilers are heated by 24 fires, and will contain 2,00 tons of water. She has six masts, four of which are hinged for lowering when head winds set in; the masts are made of iron, having iron wire rigging, so that very little surface is presented to the resistance of the atmosphere; the quantity of canvass carried, is about 4,900 square yards. Upwards of 1,500 tons of iron have been used in her construction; her draught of water is about 16 feet, and the displacement of water, equal to 3,200 tons.

The Great Britain was visited while at Liverpool by 33,000 persons, and probably by an equal number at London. During the few days since her arrival at New York, she has been visited by about 12,000 people, who have paid 25 cents for the gratification. If there is any thing objectional in the construction or machinery of this noble ship, it is the mode of propelling her by the screw propeller; and we should not be surprised if it should be, ere long, superceded by paddle wheels at the sides; as there can be little doubt that such an improvement would increase her speed to 18 miles per hour, and render her the swiftest ship on the ocean.

SCIENTIFIC.

First Principles of Mechanics.

The science of mechanics, in its most extensive sense embraces a large proportion of what is termed Natural Philosophy, or the system of laws which govern the various operations of Nature. It investigates the laws and effects of Inertia, force, motion, momentum, equilibrium, gravity, &c.

Inertia is that which constitutes in all bodies or substances, a tendency when at rest, to remain at rest; and when in motion to continue in motion independent of any force or power. But as every moving body is supposed to have been put in motion by some moving power, its inertia in this case becomes *momentum.*

Illustration.—If a round ball is placed on a table that is perfectly level, it will remain a rest, and will require the application of power or force to put it in motion; but when this ball is put in motion, it will require some resistance to stop its motion.

Gravity is that property which consists in all bodies a tendency to move towards each other, and especially, towards the centre of the earth; it is always in direct proportion to inertia. Gravity is generally considered to be merely the attraction of the earth; it consists of the force by which bodies descend towards the earth when suspended, or are let go from a height; and this force constitutes weight.

Illustration.—If a ball be suspended by a cord, it will uniformly hold the cord in a position at right angles with the surface of the earth. If the point from which the ball is suspended be fixed, and the ball be removed any distance from its natural position, it will, when liberated, return to its natural position directly under the point of suspension; but in this instance, it will not readily stop at the point of its natural position; but having received an impulse from the force of gravity, its momentum will force it some distance beyond the given point, until this momentum is again overcome by gravity: then gravity again impels it in a contrary direction, and it is again carried beyond by its inertia. Thus a vibratory motion is for some time continued, before the ball becomes stationary. Here are illustrated by one example, Gravity, Inertia, Motion and Momentum.

ART OF PAINTING.—Being practically acquainted with every branch of painting, from the plainest house and ship-work, to the finest miniature portraits, we propose to give in a series of numbers, complete instructions in every branch, including the mosaic and fresco landscape in oil, transparencies, carriage ornamenting, sign lettering, *claro-obscuro*, glass-staining, perspective, portrait, and miniature gilding, burnishing, varnishing, &c. We shall be particularly explicit with regard to the preparation of colors, and execution of plain work, that many of those who have had no instruction, may be enabled to accomplish small jobs in this line occasionally, for their own amusement or convenience.

REMITTING MONEY.—Our subscribers who receive their papers by mail, will remit one dollar each by mail on the receipt of the second number of this paper. Those who reside in cities, will pay to such agents only as may produce written authority from the publisher, to collect the same. This rule, however, will not interfere with those voluntary agents who may procure a few subscribers amongst their associates and acquaintance, and remit the money by mail.

CHEMISTRY.

We propose to give, in a series of brief essays, such explanations and illustrations of the principles and peculiarities of the science of chemistry as may be the most immediately applicable to the arts and trades, the most useful to mechanics, and the most interesting to the curious, and readers in general.

Chemistry developes the composition and properties of bodies, and the combination of the various ingredients of which they are composed; also, the effects of one substance on another, and the art of decomposing, recomposing separating and combining them, in such a manner as to examine minutely the several ingredients of which bodies are composed, and by new combinations thereof, to form or produce other substances entirely different from the original. There is no art or science by which a man can accomplish a work of creation with so much verity, as by chemistry. Liquids are changed to solids, and dry substances to liquids, and then again to air or gasses. Metallic bodies are reduced to earths; thence to transparent crystals or glass; thence to transparent liquids, and next to thin air, whence they may be again precipitated and restored to their original brilliant metallic state. From a limpid fluid, like water, a chemist will produce a marble statue; a silver urn; an iron bolt; or a glass decanter; also, paints of various brilliant and durable colors, such as vermillion, prussian blue, chrome yellow, french green, spanish brown, red lead and white lead. The precious metals, gold and silver, are extracted from the lustreless rock, and appear in dazzling brilliancy; again, they are made to take the form of transparent fluid, or in the more invisible gaseous form, float off in the passing breeze. Such is chemistry; and we feel assured that this sublime and interesting science would not be long neglected by mechanics and working men, if they could first be made aware of the utility of a knowledge of its principles, and the beauties and wonders of nature which are thereby brought to view.

Morse's Telegraph.

This wonder of the age, which has for several months past been in operation between Washington and Baltimore, appears likely to come into general use through the length and breadth of our land. Arrangements are already made for extending the lines to Philadelphia, New York, Albany, Buffalo, Springfield, Boston, and various other cities and sections. Hon. Amos Kendall, Ex-Post-master General, has taken the management of the invention,—whether as proprietor or agent we are not informed,—while the inventor is on a tour to Russia. We shall take an early opportunity to give our readers a full and minute description of this invention, with explanations and illustrations of its principles; but in consequence of the press and variety of matter which presses on this our first number, we are constrained to defer it. We will add the remark, however, that it is contemplated by the merchants of onr Western states, to communicate their orders for goods, &c. by means of the telegraph, instead of abiding the slow and tedious progress of rail-road cars.

THE JOINT STOCK SHARES.—The proposition in our first prospectus, relating to furnishing joint stock certificates, appears to have met with perfect indifference. We do not know of one subscriber who appears to regard it as of any consequence. We intend making the experiment, however, and shall furnish certificates as proposed.

NEW INVENTIONS.

DAGUERREOTYPE CAMERA.—M. Martiner has stated to the French Academy of Science, that he has discovered the means of carrying on the Daguerreotype process on a gigantic scale, as compared with what is now done. He can, he says, Daguerreotype an entire panorama, embracing 150 degrees. His process consists in curving the metallic plate, and causing the lens which reflects the landscape to turn by clock-work. The lens, in turning, passes over on one side the whole space to be Daguerreotyped, and on the other side moves the refracted luminous cone to the plate, to which the objects are successively conveyed.

Mr. Joseph Hurd, of Shoreham, Vt. has secured Letters Patent, for an apparatus for separating or clarifying liquids by application of *centrifugal force.* It is a well-known fact that mucilage or sugar, as well as mineral and saline substances, have a greater specific gravity than water, though the particles thereof, will not readily separate from water by mere force of gravity: but when a mixed fluid, or turbid water is put into a violent rotary motion, in a cask or cylinder, the centrifugal force will drive the heavier particles to the sides of the vessel, while the clear water remains in the centre.

A NEW INVENTION FOR CLEANING COTTON, completed by Mr. Philip Ault, of Natches is composed of a wire cylinder within a box, in which revolves a shaft with arms capped with rails; from the rails spikes or pins project, which separate the locks containing the seeds from each other, knock out the trash and dust, and pass the cleaned cotton over the cylinder down into the gin stand. The shaft is driven by the same power that drives the gin requiring but little force. It is a valuable assistant to the Planter.

INDIA RUBBER.—There is no end to the many valuable objects to which India Rubber may be applied. A new one has been discovered, and that is the inner sheathing of ships, where sheathing paper is now used in small sheets and where this new rubber can be applied in wide strips extending the entire length of the vessel. The rubber being indestructible and impervious to water, renders it an additonal means of preventing leaks, while sand spread over it puts an end to all ravages of insects that infest salt water.

AN IMPROVED COTTON-GIN.—A. M. Groat is about introducing a Gin for long staple Sea Island cotton. It is expected to clean at least, 100 pounds per day, whereas the gins now in use will clean only about 25 pounds. The seed is separated without breaking.

A new machine for breaking stone, has been lately constructed at Brooklyn. Its construction is on the principle of a large hammer or beater, operated by a moveable steam-engine. It is intended for the West Indies, to be used in McAdamizing roads.

☞ We would invite our readers to look at the advertisement headed "Rare Project." There is real benevolence to men, in the plan proposed. As success must attend some of the inventions, and much gain may follow at little risk, it commends itself to all who desire human improvement. We gladly commend, not only the project, but also the company, as worthy the confidence of the public.

VARIETY.

A correspondent of the St. Louis Republican having been bitten by a mad dog, was cured by drinking a decoction of the bark of the common black ash.

The paddle wheels of the U. S. Steam Frigate Mississippi, are so constructed that they can be diminished in diameter if necessary, by shortening the arms.

It it stated in one of the fashionable city papers, that "there are 190 doctors is Boston, more than there are patients." It must be a healthy place.

The Mount Savage Railroad Iron Company, is turning out 100 tons of railroad bars per day, and is adding much larger facilities to its works.

The Mastadon Skeleton, lately discovered in New Jersey, and being exhibited in this city, is 23 feet in length and 11 feet high. It is diverse from the elephant, and apears to have been carnivorous.

An ancient Elm which still flourishes within three miles of Providence, R. I. measures 36 feet in circumference, 12 feet from the ground. The circumference of the top is over 300 feet.

The Pittsburg Age says that there are now in progress of erection, in and near that city, twenty six furnaces, which will turn off between seventy-five and one hundred tons of iron per day.

It is decided by the logical schools that *Puseyism* is dirived from *cat*echism, while *puppy*ism comes from *dog*matism;—that makes the difference.

A company has been formed at Portsmouth, N. H., who intend erecting a steam cotton factory to carry twenty thousand spindles, which is to be put under contract immediately.

A new and extensive woolen factory is being established at Fredricksburg, V. A.; we are glad to hear of the progress of manufactories at the South.

The Picayune has a story of a rattlesnake that swallowed a mole; but the mole would not stay swallowed, but gnawed his way out, thus killing the snake, and was off.

There is much talk about introducing *electro-magnetic light*, as a substitute for oil or gas: when we learn more about it, we shall be free to communicate particulars.

The Royal Printing Office of France possesses fonts of type in upwards of one hundred different languages, and is still receiving extensive additions.

The egg trade of Cincinnati, the past year amounted to 24,191 barrels,—2,176,333 dozens, or 26,116,000 eggs:—sufficient to cover twenty-five acres of ground.

It is contemplated to establish a steamboat ferry immediately below the great falls of Niagora, which will give visitors a great advantage in viewing the cataract.

The shares in the stock of the New River Company of London, which were at first sold at £100. are now worth £15,000 each.

The Amoskeag (N. H.) Manufacturing Company have declared a semi-annual dividend of ten per cent., yet leaving a reserved fund of $600,000.

In the town of Eden, Me., there is owned a schr. called the 'Garden,' and which is commanded by Capt. Adam Wilkins. Thus *Adam* yet holds command over the *Garden* of *Eden.*

In the county of Cayuga, N. Y., resides *ninety-three* "old revolutioners," or soldiers of the revolution. These veterans were all invited to participate in the celebration of the 4th ult.

Several springs have been recently discovered in Genesee county, the waters of which are acidulated nearly to the degree of lemonade. The acid is the sulphuric.

One of Morris's engines, of 18 tons, has lately hauled over the Reading Railroad *seven hundred and fifty tons*, at one load. This engine should be called the *Samson.*

One of the factory girls of Lowell, has earned $3,150 in the mills of that place, of which she has saved $2000, besides applying $1,150 to the support of her parents.

There is to be several railroad tunnels made and extended under the city of London during the present season. So writes Willis.

Boston, according to the new census, contains nearly 129,000 inhabitants, showing an increase of 26,000 within the last five years.

It is estimated that there are now in progress of erection within the limits of Pennsylvania, at least one hundred new iron furnaces.

A slave in Charlestown, S. C., recently, at the imminent risk of his own life, plunged into the rapid current of the river, and saved the life of a small white boy, who had fallen in and was drowning.

No less than 282,599,000 tons of coal have been transported over one railroad, from the Schuylkill regions, this season, up to the 9th inst.

The town of New Bedford, Mass., contains wealth enough to divide $1,000 each to every man, woman and child within its limits.

Have the courage to pay a debt, while you have the money at command. Have the courage to wear your old coat till you can pay for a new one.

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Speak Gently.

Speak gently !—It is better far
To rule by love than fear:
Speak gently !—let not harsh words mar
The good we might do here!

Speak gently !—Love doth whisper low
The vows that true hearts bind;
And gently friendship's accents flow;
Affliction's voice is kind.

Speak gently to the little child!
Its love be sure to gain:
Teach it in accents soft and mild:—
It may not long remain.

Speak gently to the young, for they
Will have enough to bear—
Pass through this life as best they may,
'Tis full of anxious care!

Speak gently to the aged one,
Grieve not the care-worn heart;
The sands of life are nearly run—
Let such in peace depart!

Speak gently, kindly, to the poor,
Let no harsh tone be heard;
They have enough they must endure,
Without an unkind word!

Speak gently to the erring—know,
They may have toil'd in vain;
Perchance unkindness made them so;
Oh, win them back again!

Speak gently !—He who gave his life
To bend man's stubborn will,
When elements were in fierce strife,
Said to them, "Peace, be still!"

Speak gently !—'tis a little thing
Dropp'd in the heart's deep well;
The good, the joy which it may bring,
Eternity shall tell.

Tis said that Wine will cheer the Heart.

AIR—*'Tis said that absence conquers love.*

'Tis said that wine will cheer the heart,
But oh! believe it not;
Touch not the cup, 'twill leave a smart,
Which cannot be forgot.
The wine cup as it passes round,
Is hailed with jovial cheer,
But soon, alas, is changed the sound,
The smile becomes a tear.

Too many hearts have felt the sting,
That lurks within the bowl;
And many hearts it yet will wring,
Who heed not its controul.
But take the warning ere too late,
And leave that cup of wo,
And seek a better, happier fate,
Than wine can e'er bestow.

Nature has given in plenteous streams,
The beverage of the rose,
To drink the dew that on them gleams,
The flowers their leaves unclose.
Then why should ye not drink the same,
And leave the ruby wine;
It will not rob thee of thy name,
Nor leave thy heart to pine.

"FOR OF SUCH IS THE KINGDOM OF HEAVEN."

BY PHAZMA.

A blind old beggar, with his hat in hand,
Neglected by the lazy passers-by,
I noticed shyly at the corner stand,
With moisture falling from his sightless eye.
A child came by—a laughing little creature—
With joy and innocence in every feature—
Skipping forth gaily to an apple-stand,
She saw the beggar, and became less gay;
Then flung the bit of silver in her hand
Into the old man's hat, and ran away!

PROFUSE PROFUNDITY.—The following is an extract from what purports to have been one of the speeches in a recent discussion on the explosibility of saltpetre. "That question, sir, whether ignition and deflagration, combined with a large concatenation of explosive substances in a deleterious mixture, ignites by contact with sulphuretted oxid of supercarbonite of hydrogen, and solutions of mineral matter in a mass of unsophisticated materials, is essentially assimilated to the question by the illustrious Pantagonus, whether the hybernal frigidity of the antipodes, passing in an orthogonal line through the homogeneous solidity of the centre, might warm the superficial convexity of our heels by a soft antiporistasis."—(*Interrupted by cries of 'The question,' &c.*)

CALLING HARD NAMES.—One of the multitude of modern nostrums, is headed "*Clirehugh's Tricopherus*," "caution to the public," &c., but which we have not sufficiently examined to ascertain whether it is a specific for the *lock'd jaw*, or otherwise; but *Dr. Feuchtwhangers Scolicotoxicon*, which is highly recommended for the destruction of rats, may be effectual in disabling them at least, if they attempt to articulate the title on the label.

WHAT IS WEALTH?—In a recent statistical volume in Pennsylvania, 1,000 distilleries have been enumerated as wealth. A cotemporary inquires how much such wealth as this would be required to render the United States properous and happy? allowing each distillery to manufacture and vend 10,000 gallons of alcoholic liquors annually.

Curious Arts.

TO WRITE IN VARIOUS COLOURS WITH THE SAME PEN, INK, AND PAPER.—Take a sheet of paper and wet some parts of it with a solution of sub-carbonate of potas, which must be diluted with water so as not to appear on the paper when dry. Wet some other parts with diluted muratic acid, or with juice of lemons. Some other parts may be wet with a diluted solution of alum; and others with an infusion of nut-galls (water in which bruised or pulverized nut-galls have been steeped.) None of these preparations must be so strong as to colour the paper any. When these are dry, take some finely powdered sulphate of iron, and rub it lightly on some parts of the paper, that have been wet with the subcarbonate of potas and infusion of galls. Then with the juice of violets, or of the leaves of red cabbage, write on the paper as usual with a pen. The ink is of itself a faint purple; where the paper was wet with acid, the writing will be bright red; on the sub-carbonate of potas, it will take a beautiful green; on the alum it will be brown; on the sub-carbonate of potas that was rubbed with powdered sulphate of iron, it will be deep yellow; and on the infuslon of galls that was rubbed with powder, it will be black. The juice of violets will take a brilliant yellow on the alkali if it be very strong. The juice of violets or red cabbage may be kept a long time by means of the addition of a few drops of alcohol; or the leaves may be dried by the fire, and thus may be kept ready for use; and it is only requisite to steep them in hot water, in order to prepare the ink at any time.

TO WASH BRASS OR COPPER WITH SILVER.—To half an ounce of nitric acid in a phial, add one ounce of water, and one-fourth of an ounce of good silver. It will soon be dissolved, and if the acid and metal are both pure, the solution (which is called nitrate of silver) will be transparant and colourless. Add to this a solution of nearly two drachms of muriate of soda, in any quantity of water; this will precipitate the silver in a white opaque mass. Pour off the water with the acid, and add to the silver an equal quantity of super-tartrate of pota, thus forming a soft paste; dip a piece of soft leather in this paste, and rub it on the metal to be silvered; continue rubbing it till it is nearly dry; then wash it with water, and polish by rubbing it hard with a piece of dry leather. Another method is, to add sub-carbonate of potas to the nitrate of silver, as ebullition ensues; then the acid is poured off, and the precipitate (which is white at first, but becomes green when dry) is mixed with double its quantity of muritate of soda, and super-tartrate of potas. With this composition, being moistened, the metal is rubbed over, &c.

Late News from Europe.

ARRIVAL OF THE HIBERNIA.

The Royal Mail Steamship Hibernia, arrived at Boston on Sunday, having made her passage in less than twelve days. She brings intelligence ten days later than that by the Great Britain, but we find but little that is interesting.

The news of the annexation of Texas to the United States had created no surprise, though it produced some little depreciation in Mexican Bonds.

The over-land mail from India had arrived, but brought no news of political imortance.

The news of the second fire at Quebec, had excited extensive sympathy. The Chancellor of the Exchequer promptly moved a vote of £20,000 in aid of the sufferers.

The principal news from the continent is of the splendid preparations making for the reception of Queen Victoria.

A most disastrous collision had occurred on the Black Sea, on the night of the 11th ultimo. Two Turkish steamers, the one coming from, and the other going to Trebizond, came into sudden collision, and with such violence, that one of them went down immediately, with one hundred and thirty-five persons on board.

The Asiatic cholera prevails to a frightful extent in China; in the city of Lahore the people are falling by hundreds daily.

Exportation of Manufactures.

We are informed that more than $2000,000 worth of American clocks have been shipped to England within a year past, notwithstanding the heavy duties thereon. Ten thousand clocks have been sent from one house in Boston. Cotton goods of various kinds have been shipped in considerable quantities, and we know of several articles which might be, and soon will be exported with great advantage. But what seems decidedly queer, is that the British manufacturers are now putting American stamps on their articles of export, even when sent to their own colonies. It is reported that a bale of goods recently arrived at Quebec, from England was stamped "Saco, Me." We hope our Canada neighbors will look sharp to the "auld folks at hame," or they may find themselves "taken in" more essentially than they have hitherto learned to anticipate.

FOUR HOURS FROM TROY TO NEW YORK.—We learn that Mr. J. Gold, of Troy, has nearly completed a boat, which he expects to make the trip to New York in four hours, by means of an improvement on the *propelling* principle. We should hope he may succeed; but from the little knowledge we have of his plans, we are inclined to allow him at least six additional hours in which to accomplish the trip. We yet hold firm the opinion that no plan but that of the "Burden's boat," so called, can ever be driven with the velocity anticipated by Mr. Gold. We may say more on this subject anon.

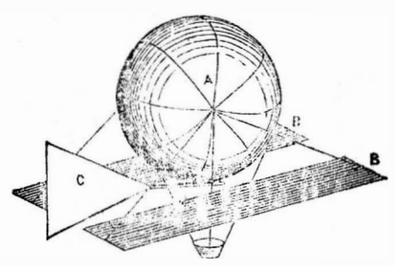
THE NEWS.—Our readers will readily perceive that several articles in this number were prepared for last week; but a little delay in procuring our engravings induced us to date forward. We shall be prompt in future.

NEW INVENTIONS.—We have a variety of notices of new inventions on hand, which we are compelled to defer for the present.

Ærial Navigation.

SIGNOR MUZIO MUZZI'S TRAVELLING BALLOON.

We doubt whether any event or circumstance has transpired within the present century, which has served to develope the ignorance and gullibility of the citizens of New York, to so great an extent, as that of the introduction of Signor Muzzi's contrivance for ærial locomotion. We have indeed been distressed with mingled sensations of regret and vexation, to witness the applause of several of the most popular city papers, and the names of several of our professors of sciences, and men of reputed scientific attainments, appended to a certificate of commendation of a contrivance, the futility of which is so palpable at first sight, that a school boy of nine years would be censurable for dullness if he could not readily detect it. But without proceeding further with our own opinion, we will present an illustrated description of the apparatus to our readers, that they may exercise their own judgment on the subject:—



This cut sufficiently represents the machine; which consists of a balloon or ball, (A) made of oiled silk or paper, and filled with hydrogen gas. To this balloon are attached two inclined planes (B B) which are also constructed of light material and secured in their position by cords. In addition there is a triangular vane, tail, or rudder (C) by which the machine is steered on the principle of a helm. The plan, or mode of operating the machine, is to supply it with a sufficient quantity of gas to cause it to ascend, while the inclined planes, encountering some degree of atmospheric resistance, naturally shoot off in an oblique direction, drawing the balloon with them. Then, when the machine has ascended to a sufficient height, a part of the gas is to be let off or compressed, so as to cause the balloon to descend, and by a simple contrivance, the position of the two planes is reversed, the depressed ends being brought to the front, they give the balloon an oblique direction in its descent. Thus, by ascending a mile and again descending, a mile of horizontal distance is gained; and if the atmosphere be entirely calm, a mile may be travelled about as quick as a lame man would walk the same distance. But if there be the least breeze of head wind, the game is up. And by what means the balloon is to be made to again ascend, without a fresh supply of gas, the inventor has not informed us—perhaps he does not exactly know.

Such, gentle reader, is the invention which has been lauded by our first men and biggest editors, and of which an awkward model has received "rounds of applause" from a "select and fashionable audience" (who paid fifty cents each to witness the wonder,) as the nearest approach to successful ærial navigation that has ever been thought of, notwithstanding that ten years ago, in a popular public journal of this city,—and again four years ago, in another city paper,—a plan was presented to them, with ample illustrations, explanations and demonstrations of an ærial apparatus, on perfectly rational and established principles, that will evidently navigate the atmosphere at a speed of one hundred miles per hour, with safety, and perfectly at command; being in the form of an *eliptic spindle*, with a buoyancy of several tons, and driven forward by the power of steam, applied to revolving, spiral fan-wheels.* Why then, it may be asked, has this *new plan* produced so much excitement, amongst the very people who appeared totally indifferent to the *rational* plan? The answer is, simply, that the scientific plan was introduced by an American, while the new apparatus was invented by an *Italian* gentleman,—the audience knowing but little of the merits of either.

With regard to the inventor,—Signor Muzzi,—he appears to be an unassuming gentleman, desirous of procuring asssistance to put his invention in successful operation on a large scale. In this we may well sympathise with him, and heartily wish him all possible success: but we should be glad to have our citizens of scientific pretensions, become better informed in the principles of natural philosophy, than they have manifested on this occasion.

We had intended to add some remarks on Mr. West's eloquent lecture on this subject, but must defer them till next week.

* We have a large engraving of this apparatus in progress, and shall present it with full explanations in two or three weeks.

Electro-Plating.

This incomprehensible art, which has been in use about three years, is truly valuable and must prevail extensively, notwithstanding the disadvantage to which its reputatiou has been subjected, in consequence of the many impositions practised on the public, by the unprincipled speculators. Having been the first to introduce this art in the city of New York, we have had opportunity for more experience in the business, probable, than any other person in the country; and can say with confidence, that either gold-plating or silvering can be executed by the electro process, with greater beauty and permanence than can be done by the old process, yet at less than one half the expense. But there is a much deeper and extensive knowledge of the art required, than is usually attained by ordinary practitioners, in order to insure durability as well as beauty, though there is in reality, no difficulty in effecting it. Even iron, steel or pewter may be plated *directly* with silver, which will firmly unite with the surfaces. It is well known that many young men have paid fifty dollars cash for a mere superficial knowledge of the art; but it is our intention to give in future numbers, such minute and complete instructions in the various branches of this art, and of the requisite apparatus, that any attentive reader may acquire the art, more perfectly than has been hitherto understood by those who have paid high prices for instruction.

Interesting Experiments.

It frequently occurs, that substances of different colours or even without colour, by coming in contact, produce colours very different from that of either of the ingredients when separate; thus, if a sheet of paper be striped in one direction with a hair pencil dipped in a solution of sub-carbonate of potas; and then crossed with a solution of sulphuric acid, diluted with five times as much water, it will be colourless; but dip it in a mixture of a weak solution of sulphate of iron, and infusion of nut galls, and it will instantly become a beautiful plaid; the ground being purple, striped one way with black and crossed with white.

If a similar paper be striped with sub-carbonate of potas and crossed with infusion of galls, and afterwards dipped in a solution of sulphate of iron, it will become purple, yellow, black and white.

Stain some parts of a sheet of paper a purple brown, with a mixture of infusion of galls and sulphate of iron: stain other parts green with a mixture of tinctures of turmeric and litmus; stain other parts purple with juice of red cabbage; other parts red, with tincture of litmus and muriatic acid; other parts yellow with tincture of turmeric; wash the remainder of the sheet with a solution of sulphate of iron, which will remain white. Then print or draw with a camel-hair pencil, any figure or figures on every part of the paper, with a solution of subcarbonate of potas. On the purple brown, the figure will be black; on the green it will be purple; on the purple it will be green; on the red it will be blue; on the yellow, red; and on the white it will take a yellow colour. Thus the figure will appear in colours different from the ground in every part.

Immerse a piece of white cotton in a solution of sulphate of iron—it will remain white: dip another piece in tincture of turmeric, it will take a yellow; wet another piece with juice of red cabbage, containing also a few drops of muriatic acid,—it will be red; dye another piece green by immersing it in a mixture of tincture of turmeric and litmus; and another purple, by a mixture of infusion of galls and sulphate of iron. Let them dry; then immerse them altogether in a solution of sub-carbonate of potas. The white will be changed to a yellow; the yellow to a red; the red to green; the green to purple; and the purple to black; and it is not improbable that black might be materially changed or bleached by the same simple solution.

Rational Religion.

What is true and rational religion? In answering this important question, we shall come to the point at once, without prejudice or sectarian influence; and laying aside all traditionary superstition, which has had its origin in clerical policy, inquire what is *now* the will of the blessed Deity, with regard to the conduct of the children of men. What course of conduct, in us, frail, erring human creatures, will *now*, under all the present existing circumstances, be acceptable and approved by our divine Creator, who continually watches over us, and observes our every act, and the thoughts of our hearts? We have so dilligently examined the answer which we are about to give to these questions, and so attentively viewed the subject in all its bearings, and with all its evidences and demonstrations, that we can not think it possible that there is any ground to doubt its correctness. First, then, let us, as *rational* creatures, be ever ready to acknowledge God as our Creator and daily Preserver; and that we are each of us individually dependant on his special care and good will towards us, in supporting the wonderful action of nature which constitutes our existence; and in preserving us from the casualties, to which our complicated and delicate structure is liable. Let us also, knowing our entire dependence on Divine Benevolence, as rational creatures, do ourselves the honor to express personally and frequently, our thanks to him for his goodness; and to present our petitions to Him for the favours which we constantly require. This course is *rational*, even without the aid of revelation: but being specially invited to this course, by the divine word, and assured of the readiness of our Creator to answer our prayers and recognize our thanks, it is truly surprising that any rational being, who has ever read the inspired writings should willingly forego this privilege, or should be ashamed to be seen engaged in this rational employment, or to have it known that he practices it. Next to the worship of God by thanksgiving and prayer, we skould repel and banish all feelings of anger and bitterness toward our fellow beings, and cherish love and kind feelings towards them. This course is also rational, having the example of God in his kind dealings towards us; and conduces at once, to the glory of God, the happiness of mankind in general, and to our own individual happiness and prosperity in particular. It is also a rational duty to be ever reconciled and resigned to the dispensations of Divine Providence; and to trust in the goodness and benevolence of God for the present and future, and to feel willing to have it known amongst our associates, that we follow a rational course. This is rational religion.

RELIGIOUS INTELLIGENCE.—The following item is the more interesting on account of a recent statement by one of the missionaries, that the Chinese are supposed to spend $360,000,000 annually for incense to burn before their idols:—

DR. PARKER OF THE CHINA MISSION, in a letter recently received, says, that a report came to his ears that a native Chinese had memorialized the Emperor in relation to Christianity, forwarding at the same time specimens of Tracts, &c., and that the Emperor had returned an answer in which he said that the publication of such Tracts was calculated to promote virtue and happiness, and ought to be encouraged. Dr. Parker wrote to the governor to ascertain whether this was indeed the fact. The governor in a very curious reply, confirms the report, and added that the Emperor had concluded to excuse those who embraced the Christian religion, and believed in such Tracts, from the punishment usually inflicted.

THE GUARANTEE.—We shall present in our next number a safe and satisfactory guarantee for the continuance of this paper for a year at least.

New Patents.

(We are under special obligations to the Commissioner of Patents, for furnishing us with the following list of Letters Patent, issued since July 1st, 1845.)

Names and residence of Patentees,—subjects and dates of Patents.

Raising and lowering weights—Ephriam Morris, New York, July 5th.

India rubber fabrics—Chas. Goodyear, New Haven, Ct. July 5.

Ship's Anchors—N. P. Jones, & James Raisbeck, N. Y. July 5.

Globes, mounting—Silas Cornell, Rochester, N. Y. July 5.

Cooking Stoves—W. L. Potter. Clifton Park, N. Y. July 5.

Saddle Springs—John F. Lehr, Huntsville, Ala. July 5.

Washing Machine—Harrison Hagans, Brandonsville, Va. July 5.

Truss Pads, double—Wm. R. Goulding, N. Y. July 5.

Ores, method reducing iron ore to malleable iron, &c.—Wm. Neal, Clag, (England) assigned to Wm. Green, Jr. Woodbridge, N. J. July 5.

Printer's Ink—Edward Clark, Brooklyn, N. Y. July 5.

Hydro-oxygen Blow-Pipe—Robert Hare, M. D. Philadelphia, July 5.

Planing Machine—Wm. W. Woodsworth, administrator of Wm. Woodworth, deceased, Hyde Park, N. Y. re-issued, July 8.

Ornamental Stove—Samuel H. Ransom, Albany, N. Y. July 10.

Mode of adjusting Toggle Joint—S. W. Bullock, Williamsburg, N. Y. July 10.

Piano Forte—Samuel R. Warren, Montreal, Canada, July 10.

Winnowing, Fan Mills—Isaac T. Grant, Shagticoke, N. Y. July 10.

Machine for screw finishing—Cullen Whipple, Providence, R. I. July 10.

Sugar Making—Joseph Francois Lapice, Ass'e. of Charles Louis Derosne, France, (Amer. patent) July 10.

Hemp Brake—Coleman C. Estes, Maury Co. Tenn. July 14.

Plough—Samuel Shearer, Big-Prairie, Ohio, July 14.

Thrashing Machine—J. T. & E. Warren, N. Y. July 14.

Excavator and Ditching—-Robert Cummings, Lima, Ia. July 14.

Propeller—Horatio Hubbell, Moyamensing, Pa. July 14.

Ornamental Open Stove—Jagger, Treadwell, & Perry, Albany, Assigness of Exra Ripley, Troy, N. Y. July 14.

Air-Tigh Stove—Benj. Starbuck, Assignee of Anson Atwood, Troy, N. Y. July 14.

Cure of smoky chimneys—Augustus Haman, Washington, D. C. July 22.

Cooking Stove—E. Johnson & D. B. Cox, Troy, N. Y. July 22.

Carriages—John Kimball, Kinnebunk, Me. July 22.

Turning Lathe, for irregular forms—-Warren Hale, & Allan Goodman, Dana, Mass. July 22.

Managing Bees—Elias Parks, Wheatfield, N. Y. July 22.

Manufactures of Hats—John N. Genen, New York, July 22.

Ventilating Hats—Geo. W. Cherry, Alexandria, D. C. July 26.

Brick Making—J. Parsons Owen, Cincinnatti, Ohio, July 26.

Atmospheric Rail-way—James Pilbrow England July 26.

Water Wheel—R. C. Grant, Pomeroy, O. July 26.

Reaction Water-Wheel—Orin W. Seely Assignee, of Joshua Evered, Lodus, N. Y. July 30.

Reaction Water-Wheel—Abner Chapman, Fort Miller Bridge, N. Y. July 30.

Twist Augur—Ezra Chapman, Chester, Ct., reissued, July 30.

Castors—Philos, Eli W. & John A. Blake, New Haven, Ct. reissued, July 30.

Plough—Wm. Bullock—Jersey City, N. J. July 30.

Bee-House—Abraham Decker, Walnut Township, Ohio, July 30.

Hot-Air Furnace—Gardner Chilson, Boston, Mass. Aug. 4.

Stove—Jehiel T. Farrand, Port Byron, N. Y. Aug. 4.

Balance for Time Keeper—John Bliss & F. Creighton, New York, Aug. 4.

Harness Collar—F. C. Curtis, Columbia, S. C. Aug. 4.

Mode of casting Type—Thos. W. Starr, Philadelphia, Pa. Aug. 4.

Bugles, keyed of Turtle shell—Geo. W. Shaw, Thompson, Ct. Aug. 4.

Artificial Nipple—Elijah Pratt, New York, Aug. 4th.

Uterine Supporter—Ephraim Calvin, North-Granville, N. Y., Aug. 4th.

Bottles for nursing—Elijah Pratt, New York, August 9th.

Saddles—Benjamin Suits, Chittenango, N. Y., Aug. 9th.

Butt Hinge—James Roy & Co., Troy, N. Y., reissued Aug. 9th.

Paper Manufacturing—Arthur Varnham, London, Eng., Aug. 9th.

Reflecting Heat Baker—William Tainter & H. S. Orton, Porter county, Ia.

Hot Air Furnace—Adrian Janes, New York, August 9th.

Clocks—Eli Terry, Plymouth, Ct., Aug 9th.

Preparing Provisions—D. Lardner & James Davidson, New York, Aug. 9th.

Gas Burner—Wm. Black, Boston, Aug. 9th.

Improvement in Cooking Stoves—Hosea Huntly, Rochester, N. Y., Aug. 16th.

Construction of Hose—Horace H. Day, Jersey City, N. J., Aug. 16th.

Lathe Cutting Machines—Solomon F. Finch & James Wheeler, Rootestown, Ohio, Aug. 16th.

Machines for making wooden pegs—Thomas A. Robertson, Georgetown, D. C., Aug. 16th.

Improvement in Grinding Mills—Beriah Swift, Washington, N. Y., Aug. 16th.

Clover Hulling Machine—Samuel W. Powell, Turbet, Pa., Aug. 16th.

Improvement in Door Locks—Angus McKinnon, New York, Aug. 16th.

Washing Machine—Harvey W. Sabin, Bainville, N. Y., Aug. 16th.

SECOND ADVENTISM.—A gentleman writing from England, states that a religious excitement similar to American Millerism, has commenced in that country, under the auspices of late ministers of the established church, who preach the approaching second advent of the Saviour; but that the preachers have all been suspended by the established church. It could not be expected, that the dignitaries of that church would tolerate the preaching of the probability of an event, by them dreaded as one that would destroy all their fair prospects with their enormous salaries, and honours of this world.

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Most numerous are the inventions lost to the world for ages, and many doubtless to this day, bec inventors, being poor, could not bring them out. To remedy this evil to some extent, the following plan is suggested.

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We add one other consideration. Had Fitch, who first applied steam to propel a boat, and was the real first inventor of steam boats, received a little aid, steam boats would have been in operation more than 50 years ago, and our country would have had the undisputed honor of the invention. But he exhausted his means—none would help—and though he knew it was worth millions, he died in poverty, and our country was the loser for a half century.

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The town right will be his who procures 25 share subscribers and sends us the money. The 50 acres his who sends us the money for 150 subscribers within three months. The 100 acres his who sends us for 300 in four months. The $2 his who sends us the $2 each for 12 subscribers in 2 months. $30 his who sends for 100 in 3 months, $85 his who sends for 250 in 6 months. The interest tables or Essay shall be his who sends us immediately the names of each waggon, carriage, plough or harness maker, of each farmer who keeps bees or silk worms, of owners of furnaces or forges, of each physician, minister, teacher, miller, tanner and merchant of the village or town where he lives, twenty-five names or more; and also a share of the patent right if he sends 25 or more names and 25 cents cash within one month.

The patent share to each of those who pay $2 within 8 weeks from next September 1, or before, will embrace three inventions; to those who pay in the next 5 weeks, two inventions; and but one to others, and not this unless cash is received in 4 months, unless we choose. The essay or tables will also be his who pays before September 20th. What we desire is speedy work—hence these large premiums. Most important inventions will thus be secured, and a profitable share to each.

We also offer to any one who will send us $10, $30, $75 or $125, to give him 3, 9, 27 or 54 shares one-third in each of three inventions, or a town right of one, two or three of the patents, and a privilege to sell rights, at great profit; and he may commence at once. We can give good business of this kind now. If our project meets with the favor we expect we shall be able to give a great deal of business of this kind, and thus greatly promote enterprize and industry. We have the best machine to clean wheat of smut, garlic, &c.; price $75. Over 70 have been put in operation in one county in Pennsylvania. We have also the best cultivator for tilling corn and putting in wheat and rye, from $6 to $15. Also the neatest, handiest and swiftest straw cutter of its size, for $12. Office for orders at room 13, 25 Pine street, next to the Custom House.

The inventions will be of different values, and will be put into such number of shares as will make each share worth $5 or more. We will dispose of the rights, keep the accounts, and pay to share holders the dividends. We shall also from time to time, quarterly or oftener, send them a paper giving them a full account of the inventions, as far as it will be best to publish it. We shall send them the first in September. Let it announce that subscribers are already in to secure the whole project. It will not fail if no more subscribe than we already have. We can do a little, and each who helps will aid us to do more; thus none will lose, but if many help, the better will it be to each. One of the most promising inventions will be very costly to start. We want 10,000 subscribers for it: but it will be worth ten times the cost; and it is certain of success, it has been so far tested. The others are very excellent in promise.

The inventions are very important; the land good in this State or in Pennsylvania; the Tables useful, and the Essay on a subject of deep interest to all; and the periodical we shall occasionally send, free of charge, will be of general interest to farmers, mechanics, patentees, physicians, ministers, and owners of minerals, and to all.

It is thus the interest of all to push this project. Let then each improve this offer at once, and have the satisfaction of aiding to bring out great inventions that promise vast benefit to mankind, and good profit to the helpers, as well as timely aid to some worthy inventors, who are struggling with poverty, whom we greatly desire to aid. Now is the WORD! Now or never. If QUICKLY done, it will be DONE and WELL done, and a GOOD THING done.

It will be easy for two or more to unite, write their names in a letter, put in the money, and direct to G. Peck & Co., New York. The mail will bring it safe, or we will risk it, and pay the postage.

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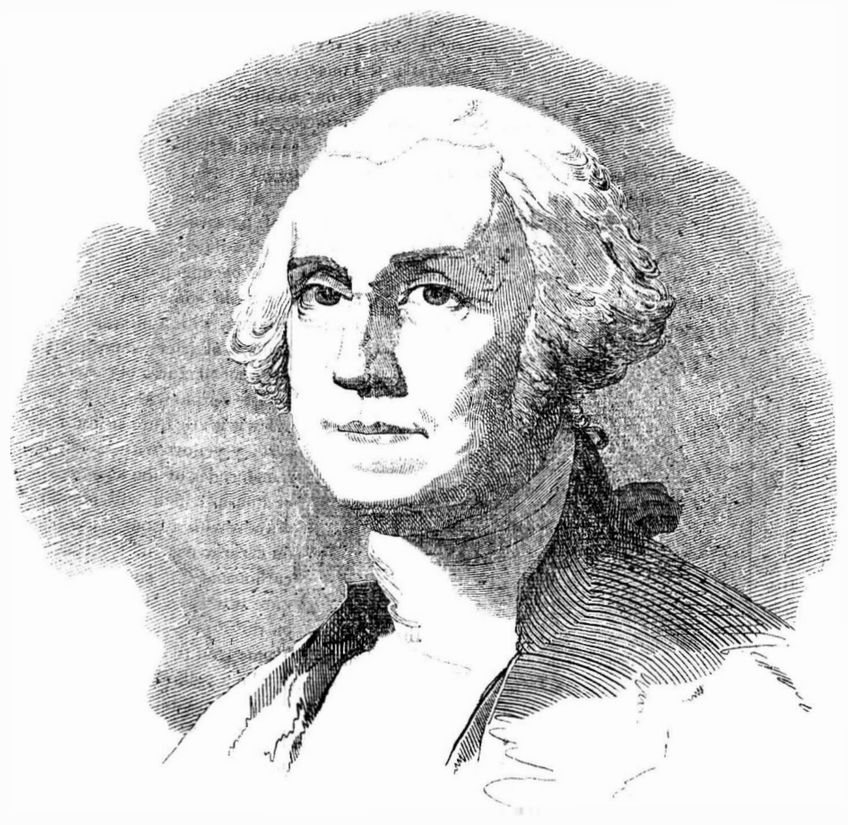

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LIST OF LETTERS

Recently received on business connected with this paper.

W W Kinne, M D, Freemansburg, N Y; N White, Bucksport, me; P M, Ripley, Ohio; C W Rockhold, Canton, Ill; J R Wildmar, Danbury, Ct; D Melville, Newport, R I; T Dickinson, Newark, N J; P M, Alford, Mass; E Griswold, Delaware, Ohio; H P Merriman, Clinton, Ill; P M, New Harmony, Ia; G F Snow, Meriden, Ct; P M, Rome, N Y; S Parks, P M, S Berwick, Me; P M, Hancock, Md; E G Chandlee, B M House, Md; John W Truston, Whiteville, Va; James L Drake, Loudonville, O; P M, Guilford, N Y; P M, Greene, N Y; P M, Huron, O; L G More, Bellefountaine, O; D Peck, Naples, N Y; P M, Winchester Centre, Ct; P M, Mauch Chunk, Pa; P M, Benton, N Y; P M, Brownsville, Pa; J T Grant, Princeton, N J; P M, Hazelton, Pa; P M, New Alexandria, Pa; A S French, Dexter, Me; P M, North East, Md; P M, Burlington, Mass; P M, West Winchester, N H; A V Holby, Williston, Vt; P M, West Middleton, Pa; A Gleason, Unionville, Ct; P M, Wellsboro', Pa; P M, Belair, Md; P M, Hillsdale, N Y; W S Fritts, Oneonta, N Y; A Palmer, P M, Stillwater, N Y; P M, Uniontown, Pa; P M, Auburn, Mass; E P Phinney, Warrey, R I; H Hill, jr, Culpepper, Va; L Anibal, Benson, N Y; P M, Alloway, N Y; P M, Colts Neck, N Y; P M, Methuen, Mass; P M, Naraguagus, Me; R. Weld, Marcellus Falls, N Y; P M, Middleborough, Mass; J R Walter, Canton, Ill; A friend to "The American," Franklin, Tenn; P M, Farmer, N Y; T Skelton, Hannibal, N Y; J G Thompson, Norwich, N Y; J Garden, Christiansburg, Va; P M, Littleton, N H; P M, Fulton, N Y; J H Vermillion, Newbern, Va; Mosher & Allen, Union Springs, N Y; P M, Pike, N Y; S Parks, Maltaville, N Y; P G Smith, Montpelier, Vt; Thomas Boynton, Windsor, Vt; P M, North Brookfield, Mass; P M, Liberty, N Y; H P Waugh, Grayson, Va; R Sackett, Mayville, N Y; P M, Madison, Va; P M, Weston, Mass; L J Chabot, Elkridge Landing, Md; P M, Northampton, Mass; P M, Jamaica Plains, Mass; P M, Quincy, Florida; C O'Neal, Darien, Ga; P M, Marion, O; P M, Holidaysburg, Pa; P M, Huron, O; S Hill, Danville, N Y; P M, Centreville, La; P M, Guildford, Ct; Wm B Allen, Elizabeth City, N C; P M, Cabotsville, Mass; P M, New Milford, Ct; Wm Sherwood, Southport, Ct; B Hoit, P M, Stanford, Ct; P M, Bristol, R I; C F Sussdorff, Salem, N C; J Spofford, East Thomaston, Me; M Adams, Adams Basin, N Y; O R Hopkins, Clarence, N Y; P M, Newbury, Vt; P M, Brookfield, Ct; E Hopkins, Lyons, N Y; S Jones, Colchester, Ct.

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